

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1-10. (Canceled)

11. (Currently Amended) A 3/2 normally closed module, comprising:

a main body including a bore having a longitudinal axis associated therewith, said main body further including an armature selectively axially slidable within said bore, said main body further including a rod affixed to a first end of said armature whereby said rod is axially slidable with said armature; and

a housing configured to receive a first ball, said housing including a first and a second valve seat, said first ball being selectively urged into engagement with said first valve seat, said housing further being configured to receive a second ball, said second ball being selectively being urged into disengagement from said second valve seat, said housing further including a ~~control~~ supply port configured to cooperate with said first ball and said second ball to selectively permit fluid flow into said module, said housing further including a supply control port in selective communication with said ~~control~~ supply port whereby when said module is in a selectively energized state, fluid flows between said supply port and said control port, said housing further including an exhaust port in selective communication with said control port whereby when said module is in a selectively de-energized state, fluid flows between said exhaust port and said control port, said supply port being concentric with said longitudinal axis, said module further including a first spring disposed between said main body and a second end of said armature opposite said first end, said housing further including a second spring proximate said supply port and disposed between said housing and said second ball, said second spring having a preload force urging said second ball toward said second valve seat.

12. (Original) The module of claim 11 further including a magnetically-energizable coil whereby when said coil is in a selectively energized state, said armature axially magnetically moves toward said first ball, thereby forcing first ball into engagement with said first valve seat, whereby when said first ball engages said first valve seat, said first

ball axially forces said second ball to disengage from said second valve seat to thereby permit fluid flow between said control port and said supply port.

13. (Currently Amended) The module of claim 11 further including magnetically-energizable coil whereby when said coil is in a selectively de-energized state, ~~[[a]] said second spring, disposed between said housing and said second ball,~~ axially forces said second ball to engage with said second valve seat, whereby when said second ball engages said second valve seat, said second ball disengages said first ball from said first valve seat thereby permitting fluid flow between said control port and said exhaust port.

14. (Currently Amended) The module of claim 11 whereby said housing further includes a first bearing well having at least one axially-extending flute to inhibit non-axial movement of said first ball within said first bearing well.

15. (Currently Amended) The module of claim ~~[[11]]~~ 14 whereby said housing further includes a second bearing well having at least one axially-extending flute to inhibit non-axial movement of said second ball within said second bearing well.

16. (Currently Amended) A normally closed module, comprising:
main body means including a bore having a longitudinal axis associated therewith, said main body means further including armature means selectively axially slidable within said bore, said main body means further including rod means affixed to a first end of said armature means whereby said rod means are axially slidable with said armature means; and

housing means including a first well configured to receive first ball means, said first ball means being axially movable within said first well, said first well further including first valve seat means, said first ball means being selectively urged into engagement with said first valve seat means, said housing further including a second well configured to receive second ball means, said second ball means configured to be axially movable within said second well, said second well further including second valve seat means, said second ball means being selectively urged into engagement with said second valve seat means;

actuation means for energizing a coil to move said armature, said actuation means having an energized state and a de-energized state, whereby when said

actuation means is in said energized state, said first ball means are forced into engagement with said first valve seat means, thereby disengaging said second ball means from said second valve seat means, permitting fluid flow between a first port and a second port, whereby when said actuation means is in said de-energized state, said second ball means is engaged with said second valve seat means, thereby forcing said first ball means to disengage from said first valve seat means, permitting fluid flow between a said second port and a third port, said first port being concentric with said longitudinal axis, said module further including a first spring between said main body means and said armature means, said module further including a second spring proximate said first port between said housing means and said second ball means and having a preload force urging said second ball means toward said second valve seat means.

17. (Canceled)

18. (Canceled)

19. (Currently Amended) The module of claim 16 ~~whereby~~ wherein said ~~housing means further include~~ a first bearing well ~~having~~ has axially-extending flute means to inhibit non-axial movement of said first ball means within said first ~~bearing~~ well.

20. (Currently Amended) The module of claim 16 ~~whereby~~ wherein said ~~housing means further include~~ a second bearing well ~~having~~ has axially-extending flute means to inhibit non-axial movement of said second ball means within said second ~~bearing~~ well.

21. (New) A fluid control module, comprising:

a main body including a bore having a longitudinal axis;

an armature axially slidable within said bore;

a rod affixed to a first end of said armature whereby said rod is axially slidable with said armature;

a housing having a first and a second valve seat, said housing being configured to receive a first ball that is axially movable into engagement with said first valve seat and a second ball that is axially movable into engagement with said second valve seat, said housing further having (i) a first port concentric with said longitudinal axis (ii) a second port and (iii) a third port;

a first spring in said bore between said body and a second end of said armature opposite said first end, said first spring urging said armature and rod into contact with said first ball;

a second spring in said housing proximate said first port having a preload force urging said second ball into engagement with said second valve seat;

a coil surrounding said armature that is selectively energizable to establish an axial magnetic force on said armature;

wherein when said coil is in a de-energized state said preload force maintains said second ball in engagement with said second valve seat, said housing and said first and second balls being configured such that when said second ball is in engagement with said second valve seat said first ball is disengaged from said first valve seat creating a first fluid path between said second and third ports; and

wherein when said coil is in an energized state said axial magnetic force acts on said armature so as to move said first ball into engagement with said first valve seat, said housing and said first and second balls being configured such that when said first ball is in engagement with said first valve seat said second ball is disengaged from said second valve seat creating a second fluid path between said first and second ports.

22. (New) The module of claim 21 wherein said housing further includes a first well having at least one axially-extending flute to inhibit non-axial movement of said first ball within said first well.

23. (New) The module of claim 22 wherein said housing further includes a second well having at least one axially-extending flute to inhibit non-axial movement of said second ball within said second well.